

IN THE CLAIMS

1. (Currently amended) A method for generating a random number, comprising the steps of: deriving from an input signal to a flip-flop a marking signal, including decorrelating said marking signal to noise, wherein said input signal has a first binary value and a second binary value and wherein a value of said marking signal is said first binary value for approximately half of occurrences of said first binary value in said input signal and is said second binary value for approximately half of occurrences of said first binary value in said input signal; ~~decorrelating said marking signal to noise~~; operating said flip-flop in a meta-stable state; and generating a random bit from the marking signal based on the occurrence of the meta-stable state.
2. (Currently amended) The method of claim 1, wherein said decorrelating step is performed by at least one linear feedback shift register.
3. (Original) The method of claim 2, wherein said linear feedback shift register provides a sufficient number of bits to decrease the chance of correlation.
4. (Original) The method of claim 2, wherein said linear feedback shift register (LFSR) provides a sufficient number of bits to reduce any bias in the LFSR output.
5. (Original) The method of claim 2, wherein said linear feedback shift register has a compensation circuit that removes bias from the generated random bits.
6. (Currently amended) The method of claim 1, wherein said decorrelating step is performed by a collection of linear feedback shift registers.
7. (Original) The method of claim 1, wherein said flip-flop is placed in said meta-stable state by violating a set-up time of said flip-flop.
8. (Original) The method of claim 1, wherein said flip-flop is placed in said meta-stable

state by violating a hold time of said flip-flop.

9. (Original) The method of claim 1, wherein said generating step further comprises the step of generating a mistake signal if an output of said flip-flop does not match an applied input.

10. (Original) The method of claim 9, wherein the mistake signal causes a random bit to be acquired based on the marking input.

11. (Original) The method of claim 1, further comprising the step of synchronizing an output of said flip-flop with a local clock source.

12. (Original) The method of claim 1, further comprising the step of collecting a plurality of said random bits to produce a random number.

13. (Original) The method of claim 1, wherein said first binary value is zero and said second binary value is one.

14. (Original) The method of claim 1, wherein said first binary value is one and said second binary value is zero.

15. (Original) The method of claim 1, further comprising the step of releasing collected bits from a shift register to generate said random bit.

16. (Currently amended) A method for generating a random number, comprising the steps of: deriving from an input signal to a flip-flop a marking signal, including decorrelating said marking signal to noise, wherein said input signal has a first binary value and a second binary value and wherein a value of said marking signal is said first binary value for approximately half of occurrences of said first binary value in said input signal and is said second binary value for approximately half of occurrences of said first binary value in said input signal; ~~decorrelating said marking signal to noise~~; operating said flip-flop in

a meta-stable state; and generating a random bit from the marking signal based on the occurrence of said meta-stable state.

17. (Currently amended) The method of claim 16, wherein said decorrelating step is performed by a linear feedback shift register.

18. (Original) The method of claim 17, wherein said linear feedback shift register provides a sufficient number of bits to decrease the chance of correlation.

19. (Original) The method of claim 17, wherein said linear feedback shift register (LFSR) provides a sufficient number of bits to reduce any bias in the LFSR output.

20. (Original) The method of claim 17, wherein said linear feedback shift register has a compensation circuit that removes bias from the generated random number.

21. (Currently amended) The method of claim 16, wherein said decorrelating step is performed by a collection of linear feedback shift registers.

22. (Original) The method of claim 16, wherein said generating step further comprises the step of generating a mistake signal if an output of said flip-flop does not match an applied input.

23. (Original) The method of claim 16, further comprising the step of collecting a plurality of said random bits to produce a random number.

24. (Currently amended) A random number generator, comprising: a flip-flop operated in a meta-stable state; a marking circuit for deriving from an input signal to a flip-flop a marking signal, including at least one linear feedback shift register that decorrelates said marking signal to noise, wherein said input signal has a first binary value and a second binary value and wherein a value of said marking signal is said first binary value for approximately half of occurrences of said first binary value in said input signal and is

said second binary value for approximately half of occurrences of said first binary value in said input signal; ~~at least one linear feedback shift register that decorrelate said marking signal to noise;~~ and means for generating a random bit from the marking signal based on the occurrence of the meta-stable state.

25. (Original) The random number generator of claim 24, wherein said first binary value is zero and said second binary value is one.

26. (Original) The random number generator of claim 24, wherein said first binary value is one and said second binary value is zero.

27. (Original) The random number generator of claim 24, wherein said one or more linear feedback shift registers provide a sufficient number of bits to decrease the chance of correlation.

28. (Original) The random number generator of claim 24, wherein said one or more linear feedback shift registers (LFSRs) provide a sufficient number of bits to reduce any bias in the LFSR output.

29. (Original) The random number generator of claim 24, wherein said one or more linear feedback shift registers has a compensation circuit that removes bias from the generated random number.

30. (Currently amended) A random number generator, comprising: a flip-flop operated in a meta-stable state; a marking circuit for deriving from an input signal to a flip-flop a marking signal, including one or more linear feedback shift registers that decorrelate said marking signal to noise, wherein said input signal has a first binary value and a second binary value and wherein a value of said marking signal is said first binary value for approximately half of occurrences said first binary value in said input signal and is said second binary value for approximately half of occurrences of said first binary value in said input signal; ~~one or more linear feedback shift registers that decorrelate said marking~~

signal-to-noise; and means for generating a random bit from the marking signal based on the occurrence of the meta-stable state.

31. (Original) The random number generator of claim 30, wherein said one or more linear feedback shift registers provide a sufficient number of bits to decrease the chance of correlation.

32. (Original) The random number generator of claim 30, wherein said one or more linear feedback shift registers (LFSRs) provide a sufficient number of bits to reduce any bias in the LFSR output.

33. (Original) The random number generator of claim 30, wherein said one or more linear feedback shift registers has a compensation circuit that removes bias from the generated random number.